Instructions

for the

HEATH ZENITH

Cartridge Adapter
Model RTA-1-5

INTRODUCTION

The Heathkit Model RTA-1-5 Cartridge Adapter will make your Robot more versatile by extending its capabilities. You may plug a number of different cartridges, which may be either 4K × 8-bit or 8K × 8-bit preprogrammed ROMs, into your Robot without having to take it apart. These cartridges may, for example, contain various songs and games.

597-3671-01

PARTS LIST

Remove the pack and check each part against the following list and Parts Pictorial. Return any part that is packed in an individual envelope back to the envelope after you identify it. Keep these parts in the envelopes until they are called for in an assembly step. Do NOT throw away any packing material until you account for all the parts.

To order a replacement parts, always include the PART NUMBER. Use the Parts Order Form furnished with this kit. If a Parts Order Form is not available, refer to "Replacement Parts" on Page 8. For prices, refer to the separate "Heath Parts Price List."

KEY No.	HEATH Part No.	QTY.	DESCRIPTION	CIRCUIT Comp. No.

INTEGRATED CIRCUITS (ICs)

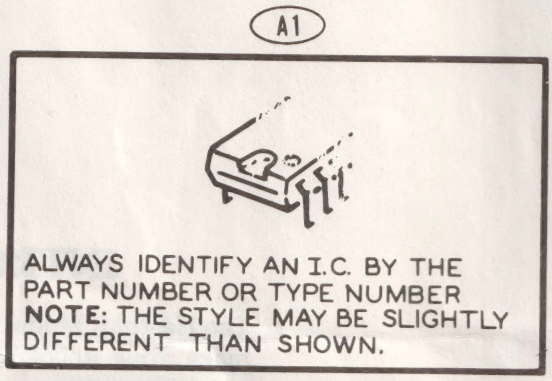
NOTE: Integrated circuits (ICs) are marked for identification in one of the following four ways:

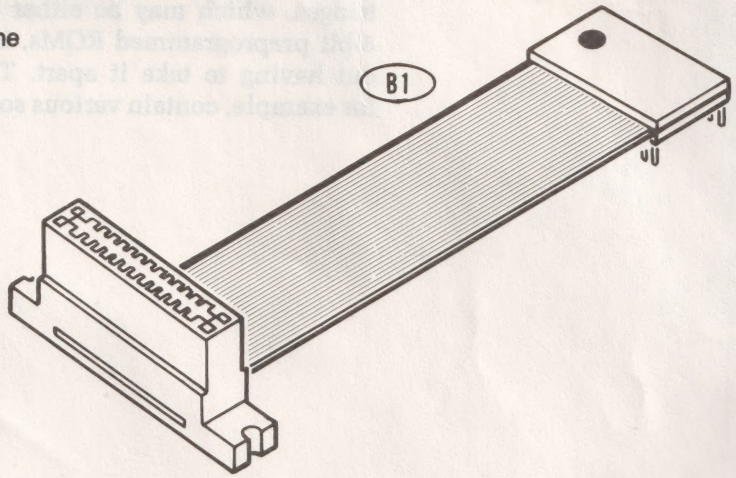
1. Part number.
2. Type number. (Use **only** those numbers and letters in **BOLD** print. Disregard any other numbers or letters.)
3. Part number and type number.
4. Part number with a type number other than the one listed.

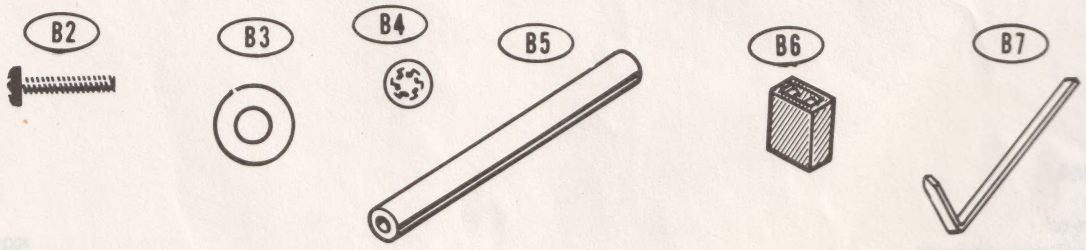
A1	443-791	1	**74LS244**	U229
A1	443-1138	1	8K × 8-bit RAM	U203

MISCELLANEOUS

B1	134-1458	1	24-wire cable assembly
B2	250-1413	4	4-40 × 1/2" screw
B3	253-84	4	Flat washer
B4	254-9	4	#4 lockwasher
B5	255-838	2	Spacer
B6	432-1041	1	2-pin jumper plug
B7	490-111	1	IC puller
		1	Blue and white label
	597-260	1	Parts Order Form
		1	Instruction Sheet (See Page 1 for part number.)





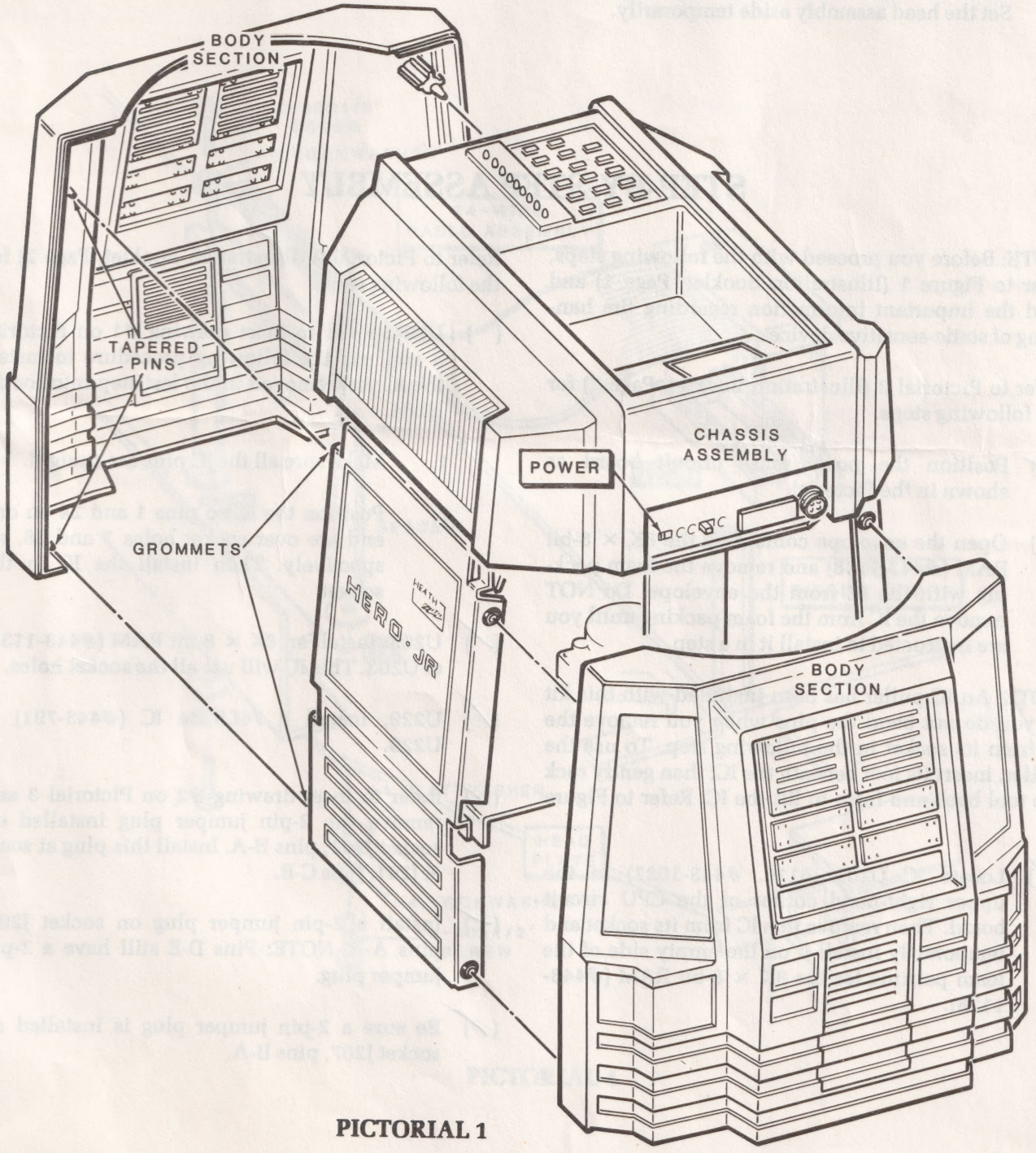


ROBOT DISASSEMBLY

Refer to Pictorial 1 for the following steps.

( ) Place the POWER OFF-ON switch in the OFF position.

( ) Remove the two body sections from the chassis assembly, if this has not already been done. Set the body sections aside until they are called for in a step.



PICTORIAL 1

Refer to Pictorial 2 (Illustration Booklet, Page 1) for the following steps.

( ) Remove and set aside the four 6-32 × 1/2" wing nuts that secure the head assembly to the chassis assembly.

( ) Disconnect socket S205 from the CPU circuit board. Then disconnect sockets S303, S305, and S306 from the power/sense circuit board. Set the head assembly aside temporarily.

( ) Disconnect sockets S307 and S304 from the power/sense circuit board.

( ) Remove and set aside the four 4-40 × 1/4" screws that secure the power/sense circuit board to the four spacers below it.

STEP-BY-STEP ASSEMBLY

NOTE: Before you proceed with the following steps, refer to Figure 1 (Illustration Booklet, Page 1) and read the important information regarding the handling of static-sensitive devices.

Refer to Pictorial 3 (Illustration Booklet, Page 2) for the following steps.

(✓) Position the power/sense circuit board as shown in the Pictorial.

(✓) Open the envelope containing the 8K × 8-bit RAM (#443-1138) and remove the foam packing with the IC from the envelope. Do NOT remove the IC from the foam packing until you are instructed to install it in a step.

NOTE: An IC puller has been included with this kit so you do not bend the pins when you remove the IC from its socket in the following step. To use the puller, insert its foot beneath the IC; then gently rock the tool back and forth to lift the IC. Refer to Figure 1.

(✓) Locate IC U203 (6116, #443-1027) in the upper right-hand corner of the CPU circuit board. Then remove this IC from its socket and temporarily install it on the empty side of the foam packing for the 8K × 8-bit RAM (#443-1138).

Refer to Pictorial 3 (Illustration Booklet, Page 2) for the following steps.

( ) U204: Refer to inset drawing #1 on Pictorial 3 and use the following procedure to install the IC you removed in the last step into socket U204.

1. Make sure all the IC pins are straight.

2. Position the IC so pins 1 and 24 on one end are over socket holes 3 and 26, respectively. Then install the IC in the socket.

(✓) U203: Install an 8K × 8-bit RAM (#443-1138) at U203. This IC will use all the socket holes.

(✓) U229: Install a 74LS244 IC (#443-791) at U229.

(✓) Refer to inset drawing #2 on Pictorial 3 and remove the 2-pin jumper plug installed on socket J201, pins B-A. Install this plug at socket J201, pins C-B.

(✓) Install a 2-pin jumper plug on socket J202, pins A-B. NOTE: Pins D-E still have a 2-pin jumper plug.

(✓) Be sure a 2-pin jumper plug is installed on socket J207, pins B-A.

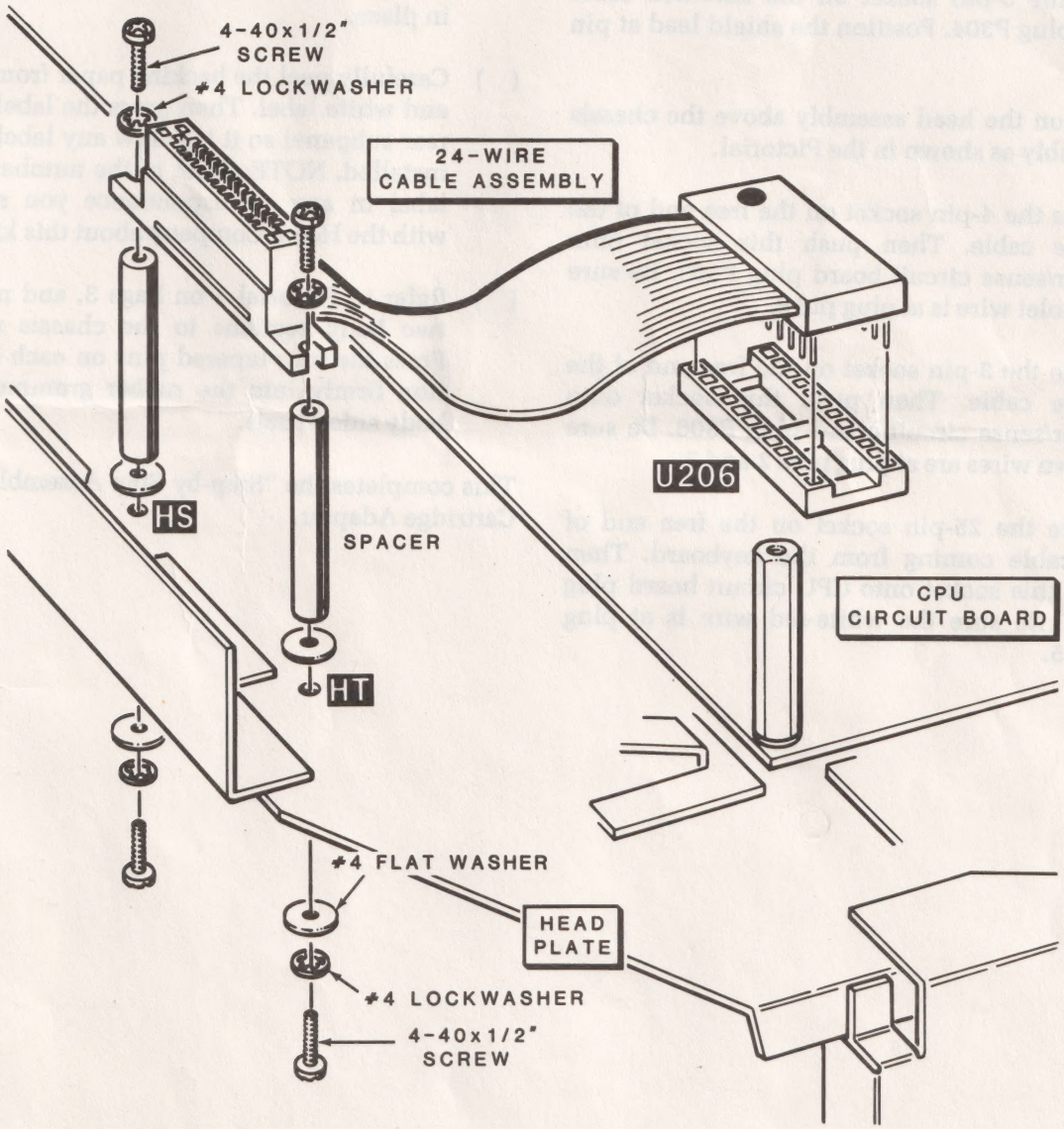
Refer to Pictorial 4 for the following steps.

(✓) Use a 4-40 × 1/2" screw, one #4 lockwasher, and two #4 flat washers to mount a spacer at HS on top of the head plate.

(✓) Similarly, mount a spacer at HT on the head plate.

(✓) Use 4-40 × 1/2" screws and #4 lockwashers to mount the socket at one end of the 24-wire cable assembly on top of spacers HS and HT. Be sure you position the socket as shown.

(✓) Be sure the pins of the plug at the free end of the 24-wire cable assembly are straight; then install it at U206 on the CPU circuit board.



PICTORIAL 4

Refer to Pictorial 2 (Illustration Booklet, Page 1) for the following steps.

( ) Position the power/sense circuit board onto the spacers on the head plate. Then use the four 4-40 × 1/4" screws you set aside earlier to secure the circuit board to the spacers.

( ) Plug the 6-pin socket onto power/sense circuit board plug P307. Be sure the black wire is at pin 1.

( ) Plug the 3-pin socket on the shielded cable onto plug P304. Position the shield lead at pin 3.

( ) Position the head assembly above the chassis assembly as shown in the Pictorial.

( ) Locate the 4-pin socket on the free end of the 3-wire cable. Then push this socket onto power/sense circuit board plug P303. Be sure the violet wire is at plug pin 8.

( ) Locate the 3-pin socket on the free end of the 2-wire cable. Then push this socket onto power/sense circuit board plug P306. Be sure the two wires are at plug pins 2 and 3.

( ) Locate the 25-pin socket on the free end of the cable coming from the keyboard. Then push this socket onto CPU circuit board plug P205. Be sure the white-red wire is at plug pin 25.

( ) Locate the 3-pin socket on the free end of the shielded cable. Then push this socket onto power/sense circuit board plug P305. Be sure the wires in this socket are at plug pins 2 and 3.

( ) Carefully lower the head assembly onto the chassis so the two screws in each head mounting bracket pass through the corresponding holes in the head plate. Be careful not to pinch any wires between the mounting brackets and the head plate. Then use the four 6-32 wing nuts you set aside earlier to secure the head in place.

( ) Carefully peel the backing paper from the blue and white label. Then press the label onto the rear subpanel so it is below any labels already installed. NOTE: Refer to the numbers on this label in any correspondence you may have with the Heath Company about this kit.

( ) Refer to Pictorial 1 on Page 3, and mount the two body sections to the chassis assembly. Press the four tapered pins on each body section firmly into the rubber grommets in the body side panels.

This completes the "Step-by Step Assembly" for the Cartridge Adapter.

HEATH COMPANY • BENTON HARBOR, MICHIGAN 49022
TLX 72-9421

IMPORTANT NOTICE

Before you install your Cartridge Adapter, please cut out the paragraph below and tape it at the bottom of Page 6.

Thank you,

HEATH COMPANY

INSTALLING CARTRIDGES

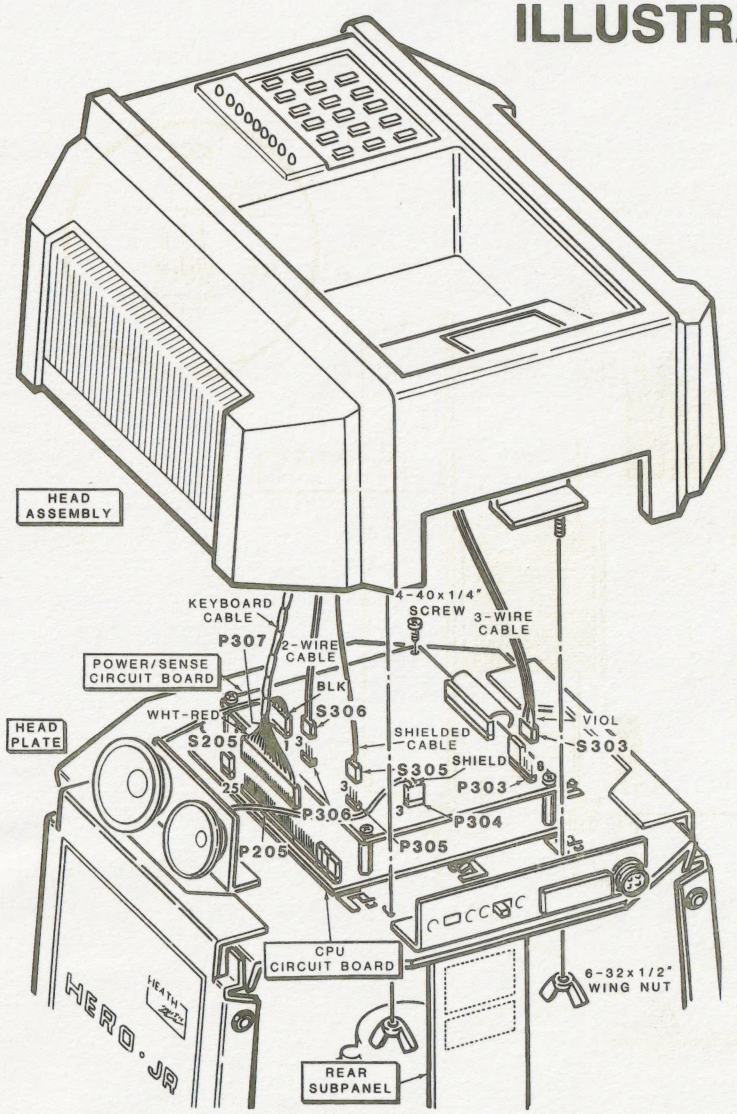
Put the Robot in the Sleep mode to plug in or unplug a cartridge. Then follow the instructions supplied with the cartridge. CAUTION: If you plug in or unplug a cartridge while the Robot is doing something, it may get hung up. If this happens, turn the Robot's power off and go through the Start-Up Procedure.

RTA-1-5/597-3671-00 & 01
591-4625

Heathkit® P-0

ILLUSTRATION BOOKLET

Part of 597-3671-01

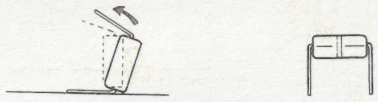


PICTORIAL 2

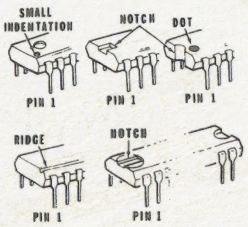
Once you remove a protected IC from its protective foam packing, DO NOT lay the IC down or let go of it until it is installed in its socket. When you bend the leads of a protected IC, hold the IC in one hand and place your other hand on your work surface before you touch the IC to your work surface. This will equalize the static electricity between the work surface and the IC.

The pins on the IC's may be bent out at an angle, so they do not line up with the holes in the IC socket. DO NOT try to install an IC without first bending the pins as described below. To do so may damage the IC pins or the socket, causing intermittent contact.

Before you install an IC, lay it down on its side as shown below and very carefully roll it toward the pins to bend the lower pins into line. Then turn the IC over and bend the pins on the other side in the same manner.



Compare the IC to the drawing shown below. Then determine which end of the IC is the pin 1 end.



Position the pin 1 end of the IC over the index mark on the circuit board. Then start the IC pins into the socket. Make sure that all of the pins are started into the socket. Then push the IC firmly into the socket. NOTE: An IC pin can become bent under the IC and it will appear as though it is correctly installed in the socket.

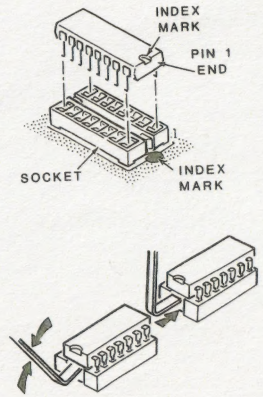
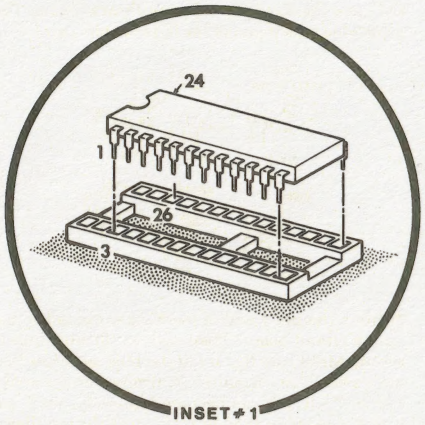
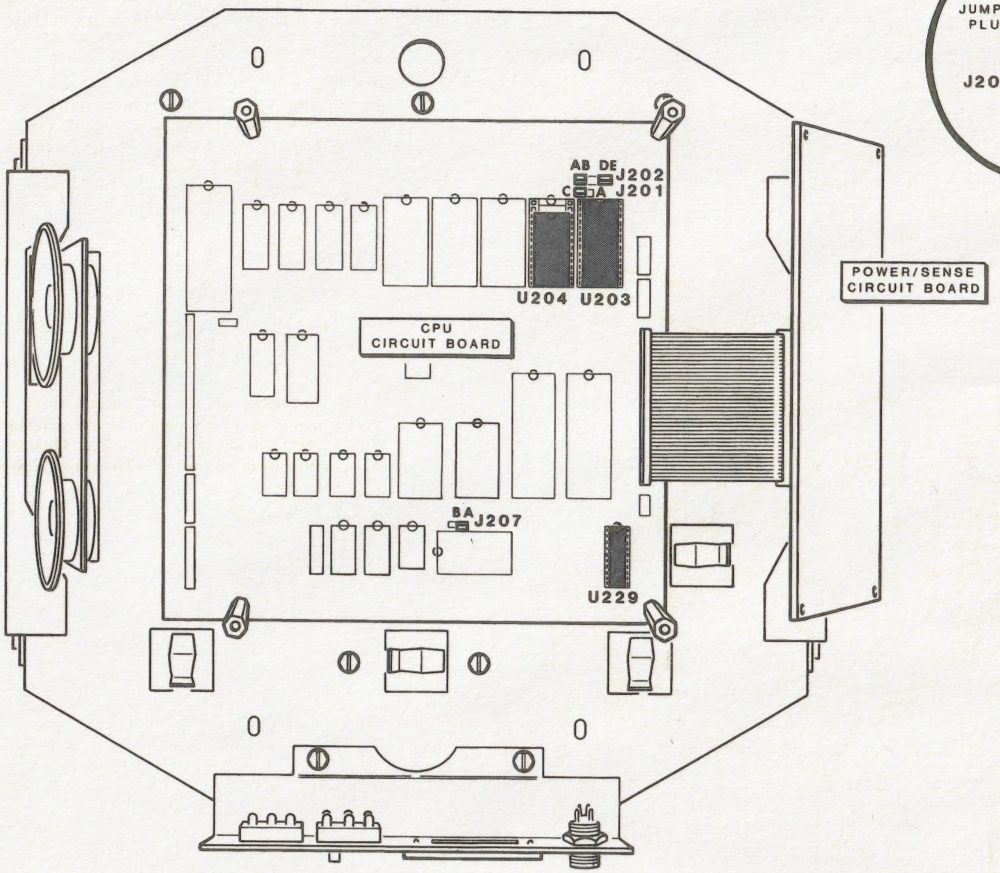
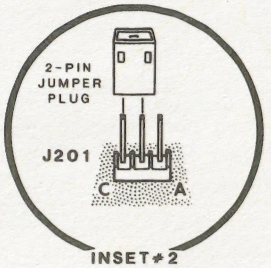


Figure 1

Model RTA-1-5


24
1
26
3
INSET # 1


AB DE J202
C BA J201
U204 U203
CPU CIRCUIT BOARD
BA J207
U229
POWER/SENSE CIRCUIT BOARD


2-PIN JUMPER PLUG
J201
C
A
INSET # 2

PICTORIAL 3